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Série des 171

WITHDRAWAL

December 2016

Standards in series Geomatics

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Décembre 2016

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CAN/CGSB-171.100-2009

North American Profile of ISO 19115:2003 – Geographic Information – Metadata (NAP – Metadata) (ICS 35.240.70)

CAN/CGSB-171.101-2010

Canadian Geographic Information Standard – Canadian Geographical Names, Level 1 (CGIS - CGN1) (ICS 35.240.70)

CAN/CGSB-171.102-2010

Canadian Geographic Information Standard – National Road Network 2.0 (CGIS – NRN2) (ICS 35.240.70)

CAN/CGSB-171.103-2010

Canadian Geographic Information Standard – Canadian Digital Elevation Data, Level 1 (CGIS – CDED1) (ICS 35.240.70)

CAN/CGSB-171.104-2010

Canadian Geographic Information Standard – Landsat 7 Orthorectified Imagery over Canada (CGIS – ORI) (ICS 35.240.70)

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CAN/CGSB-171.100-2009

Profil nord-américain de la norme ISO 19115:2003 – Information géographique – Métadonnées (PNA – Métadonnées) (ICS 35.240.70)

CAN/CGSB-171.101-2010

Norme canadienne de l'information géographique – Toponymes canadiens, niveau 1 (NCIG – TC1) (ICS 35.240.70)

CAN/CGSB-171.102-2010

Norme canadienne de l'information géographique – Réseau routier national 2.0 (NCIG - RRN2) (ICS 35.240.70)

CAN/CGSB-171.103-2010

Norme canadienne de l'information géographique – Données numériques d'élévation du Canada, niveau 1 (NCIG - DNEC1) (ICS 35.240.70)

CAN/CGSB-171.104-2010

Norme canadienne de l'information géographique – Imagerie Landsat 7 orthorectifiée du Canada (NCIG – IOR) (ICS 35.240.70)



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Canadian Geographic Information Standard – National Road Network 2.0 (CGIS – NRN2)

ICS 35.240.70



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Canadian Geographic Information Standard – National Road Network 2.0 (CGIS – NRN2)

CETTE NORME NATIONALE DU CANADA EST DISPONIBLE EN VERSIONS FRANÇAISE ET ANGLAISE.

Prepared by the

**Natural Resources Canada,
Canadian Council on Geomatics**



Canadian Council
on Geomatics



Conseil canadien
de géomatique

Reviewed by the

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Introduction

Canadian Geographic Information Standards

This document is part of a series of Canadian Geographic Information Standards (CGIS). These standards are localized national standards for particular types of geographic data, such as the product specifications for the GeoBase suite of publicly available data products, or specializations or profile of international standards in the Canadian or North American context.

The International Organization for Standardization Technical Committee TC/211 Geographic information - Geomatics has developed a suite of international standards for geographic information. These are primarily high level abstract standards that describe the fundamental information components for feature oriented vector based, or coverage (imagery and gridded) data, or geospatial services. The ISO standards tend to be too high a level to be directly implementable. It is necessary to be able to develop profiles to address specific national needs or implementations of the ISO standards such as the development of feature catalogues and product specifications in accordance with the ISO standards.

GeoBase

GeoBase is an initiative of the federal, provincial and territorial governments in Canada operating through the Canadian Council on Geomatics (CCOG) to ensure the provision of, and access to a common, up-to-date and maintained base of quality geospatial data for all of Canada. This allows Canadians to have access to the wealth of knowledge about the geography of Canada. This data is provided on line and free of charge under common terms and conditions by the participating members of the CCOG through Natural Resources Canada. The data is structured based on international standards to ensure maximum compatibility with users' systems.

The GeoBase suite of Product Specifications has been made into National Standards of Canada to stabilize the specifications and to make them permanently available. As national standards these specifications may also be referenced by other specifications and standards within and external to Canada thereby increasing the level of interoperability. Geospatial information is presented in GeoBase in separate layers, each one addressing a specific topic. There are initially four layers of geospatial information available through GeoBase which have been produced as National Standards.

These standards describe the information content of the GeoBase data layers. They do not mandate the encoding or representation of the data. GML is described as a neutral encoding. This permits multiple encodings that may be used in different media and services. A common metadata schema is used that is compatible with the CAN/CGSB-171.100-2009 (NAP — Metadata). The actual metadata elements were developed using the earlier US Federal Geospatial Data Committee (FGDC) metadata standard; however, this is directly convertible to the new North American standard. For those data layers that are geographically feature oriented a geospatial feature catalogue is included as an appendix to the standard.

Canadian Geographic Information Standard – National Road Network 2.0 (CGIS – NRN2)

1 Scope

This National Standard of Canada describes a product specification in compliance to ISO19131:2007 – Geographic information – Data product specification for the provision of fundamental geographic information to the public through the GeoBase initiative of the CCOG. This product specification describes the National Road Network (NRN2) product that contains the centerline description of over a million kilometers of non-restricted use roads in Canada.

2 Conformance

Any data set claiming conformance with this National Standard shall pass all the requirements described in the abstract test suites in Appendix A.

3 Normative references

The following documents contain provisions that, through reference in this text, constitute provisions of this National Standard of Canada. The referenced documents may be obtained from the sources noted below. The following referenced documents are indispensable for the application of this document.

A dated reference in this standard is to the issue specified. An undated reference in this standard is to the latest issue, unless otherwise specified by the authority applying this standard.

3.1 Canadian General Standards Board

CAN/CGSB-171.100-2009 *North American Profile of ISO 19115:2003 – Geographic information – Metadata (NAP–Metadata)*¹

3.1.1 Source

The above may be obtained from the Canadian General Standards Board, Sales Centre, Gatineau, Canada K1A 1G6. Telephone 819-956-0425 or 1-800-665-2472. Fax 819-956-5644. E-mail ncr.cgsb-ongc@tpsgc-pwgsc.gc.ca. Web site www.ongc-cgsb.gc.ca

¹ This standard contains a cross reference from the US FGDC Metadata fields used in the data to the definitions in the NAP Metadata standard. All the definitions, codes and tables from CAN/CGSB 171.100-2009 are available at <http://www.geoconnections.org/nap/metadata/>

3.2 International Organization for Standardization

ISO 19115: 2003 *Geographic Information Metadata*²

3.2.1 Source

The above may be obtained from IHS Canada, 1 Antares Drive, Suite 200, Ottawa, Ontario K2E 8C4, telephone 613-237-4250 or 1-800- 387-4408, fax 613-237-4251, e-mail gic@ihscanada.ca, Web site canada.ihs.com.

4 Terms and definitions

For the purposes of this National Standard of Canada, the following terms and definitions apply.

4.1

attribute

characteristic of a **feature**. For example, number of lanes or pavement status

4.2

class

description of a set of **objects** that share the same attributes, operations, methods, relationships, and semantics. A class does not always have an associated geometry (e.g., address range class)

4.3

dataset

data collection identifiable for a Canadian Province or Territory

4.4

feature

abstraction of real-world phenomena

4.5

ferry connection

the average route a ferryboat takes when transporting vehicles between two fixed locations on the Road Network. Two Junctions always bound a ferry connection

4.6

network linear element

abstract class of a road element and ferry connection

4.7

object

an object is an instance of a **class**

4.8

road element

a road is a linear section of the earth designed for or the result of vehicular movement. A road element is the representation of a road between junctions. A road element is always bounded by two junctions. A road element is composed of one or more than one contiguous road **segments**

² The normative reference is to the base ISO 19115 metadata standard. Although ISO 19115-2 exists for Imagery, this part is not applicable here.

4.9**segment**

portion of a **network linear element** that has a common set of defined characteristics (**attributes**)

4.10**universal unique identifier (UUID)**

the definition and method used for the generation of a universal unique identifier is defined in the document National Vector Data – Identification Rules available on the GeoBase portal (www.geobase.ca), under the National Road Network Data section

5 Acronyms and abbreviations

CRSID	Coordinate Reference System Identifier
CCOG	Canadian Council on Geomatics
CGSB-CoG	Canadian General Standards Board – Committee on Geomatics
CMAS	Circular Map Accuracy Standard
CRS	Coordinate Reference System
CSDGM	Content Standard for Digital Geospatial Metadata
DEM	Digital Elevation Model
EPSG	European Petroleum Survey Group
ESS	Earth Sciences Sector
FGDC	United States Federal Geographic Data Committee
GDF	Geographic Data File
GML	Geography Markup Language
GPS	Global Positioning System
IACG	Inter-Agency Committee on Geomatics
ID	Identifier
ISO	International Organization for Standardization
KML	Keyhole Markup Language
NAP	North American Profile
NAD83CSRS	North American Datum 1983 Canadian Spatial Reference System
NID	National Identifier
NRCan	Natural Resources Canada
NRN2	National Road Network

OGP	International Organization of Oil and Gas Producers
UUID	Universal Unique Identifier
UML	Unified Modeling Language
XML	Extensible Markup Language

6 Overview

6.1 Title

Canadian Geographic Information Standard – National Road Network 2.0 (CGIS – NRN2)

6.2 Reference date

Data product specifications creation date: 2010-11-10

6.3 Responsible party

GeoBase
Natural Resources Canada
Earth Sciences Sector
Centre for Topographic Information
2144 King Street West, Suite 010
Sherbrooke (Quebec), Canada
J1J 2E8

Telephone: 819-564-4857
1-800-661-2638 (Canada and USA)
Fax: 819-564-5698
E-mail: supportGeobase@nrcan.gc.ca
URL: <http://www.geobase.ca/>

6.4 Language

This data product is available in:

eng – English
fra - French

6.5 Informal description of the data product

The NRN2 product contains quality geospatial data (current, accurate, consistent and maintained) of Canadian road phenomena (including ferry connection for the purpose of road network completeness). The maintenance of the NRN2 data is done within the framework of intergovernmental partnership agreements (federal, provincial, territorial and municipal) by interested closest to source governmental bodies capable of offering adequate and current representations of the road phenomena. The frequency of maintenance aimed is of at least one update a year. Data produced form a homogeneous and standardized view of the entire Canadian territory.

The NRN2 conceptual model was elaborated in collaboration with interested data providers and is adopted by the Canadian Council on Geomatics (CCOG). The standard *ISO 14825 – Intelligent transport systems – Geographic Data Files (GDF) – Overall data specification* served as a guide for the elaboration of the NRN2 conceptual model and catalogue. The NRN2 vocabulary used (class names, attribute names and definitions) largely conforms to ISO 14825.

7 Product specification scope

7.1 Scope general

This product specification describes the NRN2 data product which contains a set of linear and point elements providing a centerline description of the Canadian road network (including ferry connection for the purpose of road network completeness).

7.2 Scope identification

Global

Note: "Global" means that this scope refers to all parts of this data product specifications.

7.3 Level

This scope refers to the following level according to the ISO 19115 and CAN/CGSB-171.100-2009 standards:

006 - series

7.4 Level name

NRN2

7.5 Extent

This section describes the spatial and temporal extent of the data.

7.5.1 Description

NRN2 data are seamless between datasets and form a continuous network over the Canadian landmass.

7.5.2 Geographic extent

The geographic extent is given by the following geographic bounding box

7.5.2.1 Westbound longitude

141° West (or -141°)

7.5.2.2 Eastbound longitude

52° West (or -52°)

7.5.2.3 Southbound latitude

41° North (or +41°)

7.5.2.4 Northbound latitude

85° North (or +85°)

7.5.3 Temporal extent

The temporal extent is given by the following period of time.

7.5.3.1 Beginning

1979-07

7.5.3.2 Ending

Now

Note: "Now" means the current date of publication of an instance of the NRN2. That is, an instance of the NRN2 may include the road network that is current at the time of publication.

8 Data production identification

8.1 Title

National Road Network 2.0

8.2 Alternate title

NRN2

8.3 Abstract

The NRN2 product is distributed in the form of thirteen provincial or territorial datasets and consists of two linear entities (Road Segment and Ferry Connection Segment) and three punctual entities (Junction, Blocked Passage, Toll Point) with which is associated a series of descriptive attributes such as, among others: First House Number, Last House Number, Street Name Body, Place Name, Functional Road Class, Pavement Status, Number Of Lanes, Structure Type, Route Number, Route Name, Exit Number.

Note: The development of the NRN2 was realized by means of individual meetings and national workshops with interested data providers from the federal, provincial, territorial and municipal governments.

Note: In 2005, the NRN2 edition 2.0 was alternately adopted by members from the IACG and the CCOG. The NRN2 content largely conforms to the ISO 14825.

8.4 Purpose

The NRN2 provides quality geospatial and attributive data (current, accurate, consistent), homogeneous and normalized of the entire Canadian road network.

The NRN2 data serve as a foundation for several applications. This common geometric base is maintained on a regular basis by closest to the source organizations selected for their specific interests or for their ease in offering adequate, up-to-date representations of road phenomena, in accordance with the GeoBase initiative (<http://www.geobase.ca/>). This common infrastructure facilitates data integration of NRN2 data with supplementary data.

8.5 Topic category

Main topics for the product, as defined by the ISO 19115 or CAN/CGSB-171.100:

013 – location

018 – transportation

8.6 Spatial representation type

Type of spatial representation for the product, as defined by the ISO 19115:

001 - vector

8.7 Spatial resolution

Spatial resolution denominator of the data:

10 000

Note: The nominal spatial resolution is only a general estimate since the data originate from multiple sources (GPS, existing federal, provincial or municipal data) but is approximately 1:10 000

8.8 Geographic description

8.8.1 Authority

International Organization for Standardization (ISO)

8.8.1.1 Title

Standard of the code of geographical regions:

ISO 3166-1:1997 *Codes for the representation of names of countries and their subdivisions Part 1: Country codes.*

8.8.1.2 Date

Reference date of the ISO 3166-1 standard:

1997-10-01

8.8.1.3 Date type code

The type of date is based on ISO 19115.

002 – publication

8.8.2 Code

Code of the geographical region covered by the product according to the ISO 3166-1:

CA – Canada

8.9 Reference to specification scope

Global (see 7.2)

9 Data content and structure

9.1 Description

The NRN2 product is distributed in the form of thirteen provincial or territorial datasets and consists of two linear entities (Road Segment and Ferry Connection Segment) and three punctual entities (Junction, Blocked Passage, Toll Point) with which is associated a series of descriptive attributes such as, among others: First House Number, Last House Number, Street Name Body, Place Name, Functional Road Class, Pavement Status, Number Of Lanes, Structure Type, Route Number, Route Name, Exit Number.

Addressing information (address range, street name and place name) linked to Road Segment entities is also distributed in three distinct tables (Address Range, Street and Place Names and Alternate Name Link).

9.2 Feature information

9.2.1 Application schema

The conceptual model of the NRN2 data is presented in the document National Road Network, edition 2.0, Conceptual Data Model, Segmented View accessible on the GeoBase portal (www.geobase.ca) and also provided in Appendix B.

9.2.2 Feature catalogue

The feature catalogue, entitled National Road Network, edition 2.0, Feature Catalogue, can be found on the GeoBase portal (www.geobase.ca) and is also provided in Appendix C.

9.3 Reference to specification scope

Global (See 7.2)

10 Reference systems

10.1 Spatial reference system

Spatial data are expressed in latitude (ϕ) and longitude (λ) geographic coordinates in reference to the NAD83CSRS. The longitude is stored as a negative number to represent a position west of the prime meridian (0°). Coordinates measuring unit is the degree expressed as a 7-decimal real value.

Note: The epoch of the CRS is 1998.

Note: The authority responsible for the CRS NAD83CSRS is the Geodetic Survey Division of Natural Resources Canada. The contact information is given below.

Geodetic Survey Division
Natural Resources Canada
615 Booth Street
Room 440
Ottawa, Ontario
Canada
K1A 0E9

Phone: 1-613-995-4410 (Monday - Friday, 07:00 - 16:00 EST)
Fax: 1-613-995-3215

Email: information@geod.nrcan.gc.ca
<http://www.geod.nrcan.gc.ca/>

The register of geodetic codes and parameters maintained by the OGP makes authoritative reference to the source of the CRS it contains. The following sub-clauses define the authority for the management of the code space, not the CRS itself.

10.2 Horizontal reference system

10.2.1 Authority of code space

10.2.1.1 Title of code space register

Coordinate reference system registry:

EPSG Geodetic Parameter Dataset

10.2.1.2 Date of reference to the code space register

Reference date:

2009-11-25

10.2.1.3 Date type code

Date type according to ISO 19115 and CAN/CGSB - 171.100:

002 - publication

10.2.1.4 Responsible party for code space register

OGP – International Organisation of Oil and Gas Producers

URL: <<http://www.epsg-registry.org/>> or <<http://www.ogp.org.uk>>

10.2.2 Code

Coordinate reference system identifier (CRSID):

The CGIS - NRN2 makes use of the OGP/EPSP code - 4617 which is equivalent to NAD83CSRS from the Geodetic Survey of Canada

10.2.3 Code space

EPSG – European Petroleum Survey Group

10.2.4 Version of code space register

7.4.5

10.3 Reference to specification scope

Global (See 7.2)

11 Data quality

11.1 Completeness

NRN2 product contains a quality geometric and attributive description (current, accurate, consistent), homogeneous and standardised of the entire Canadian road network.

NRN2 road representation corresponds to centerline of all non restricted usage roads (5 meters wide or more, drivable and not blocked by an obstacle). Roads isolated from the main road network, alleyways, resource and recreational roads and addressing information may not be included in some NRN2 datasets.

Note: Ferry connection segments are included in the NRN2 for the purpose of road network completeness.

11.1.1 Commission

Evaluation methods used for the detection of data in excess is determined by each data provider.

11.1.2 Omission

Evaluation methods used for the detection of missing data is determined by each data provider.

11.2 Logical consistency

11.2.1 Conceptual consistency

The conceptual model of the NRN2 data can be found in the document National Road Network, edition 2.0, Conceptual Data Model, Segmented View accessible on the GeoBase portal (www.geobase.ca) and is also provided in Appendix B.

The physical implementation of the NRN2 product differs from the conceptual model in what concerned the management of object metadata and the addition of certain attributes to the feature Road Segment.

For the Object Metadata, the conceptual model foresees two distinct series of metadata attributes describing the respective sources used for the creation and the revision of the data. Only the creation and revision dates were distinctly specified. When a revision date is indicated and a geometric modification was applied on the object (with regard to the previous dataset edition), the series of metadata attributes describes the sources used for revision. Otherwise, Object Metadata attributes describe the sources used for creation.

The street name, place name and address range were also added as attributes on the geometry of the feature Road Segment.

11.2.2 Domain consistency

The attributive values are validated by means of an XML schema containing the definition of the authorized domain values defined in the feature catalogue.

Authorized combinations of attribute values are validated by means of in-house software.

11.2.3 Format consistency

The NRN2 data formats conform to the distribution formats described in the document National Road Network, edition 2.0, Product Distribution Formats accessible on the GeoBase portal (<http://www.geobase.ca/>).

11.2.4 Topological consistency

The spatial relations of the entities of NRN2 datasets are systematically validated by means of in-house software.

The validation performed consists in detecting and correcting within reasonable measures: duplication of entities, connection and valency between the linear and punctual entities, assignment of identifiers (NID), geometrical incoherence ("spikes") and network continuity of route number, route name, street name and address ranges.

11.3 Positional accuracy

11.3.1 Absolute external positional accuracy

The geometric accuracy of objects is given as the difference between objects position in the dataset and their real ground positions measured in reference to the geodetic network. The accuracy may vary from one object to another. It is thus provided in attribute with each feature occurrence and is expressed according to the CMAS.

Standard Circular Error: $\sigma_c = 0.7071 (\sigma_x^2 + \sigma_y^2)^{1/2}$

σ_x : standard deviation in the X-axis

σ_y : standard deviation in the Y-axis

Circular Map Accuracy Standard: $CMAS = 2.1460 \sigma_c$

The planimetric accuracy aimed for the product is 10 meters or better. Under the data maintenance phase, no systematic validation of geometric and attributive accuracies is performed on all NRN2 datasets.

Data accuracy is evaluated according to the methods used to control acquisition sources (GPS, imagery, photogrammetry, etc.) and the positioning errors inherent to data extraction. The method for evaluating data accuracy is determined by the data provider.

11.3.2 Relative internal positional accuracy

Unknown

11.4 Temporal accuracy

Not applicable

11.5 Thematic accuracy

11.5.1 Thematic classification correctness

Unknown

11.5.2 Non quantitative attribute accuracy

The method used for evaluating the accuracy of the non quantitative attribute values with respect to reality is determined by each data provider.

11.5.3 Quantitative attribute accuracy

The method used for evaluating the accuracy of the quantitative attribute values with respect to reality is determined by each data provider.

11.6 Reference to specification scope

Global (See 7.2)

12 Data capture

12.1 Description

The method used for data acquisition is determined by each data provider. The selected method shall allow for the acquisition of quality geospatial data (current, accurate, consistent) for the entire dataset. Many acquisition sources are used: GPS, orthoimages, orthophotos, photogrammetry.

Acquisition technique used by the provider is indicated in the object metadata associated with each feature occurrences.

12.2 Reference to specification scope

Global (See 7.2)

13 Data maintenance

13.1 Description

Maintenance of the NRN2 data is done within the framework of intergovernmental partnership agreements (federal, provincial, territorial and municipal) by interested closest to source governmental bodies capable of offering adequate and current representations of the road phenomena. The minimal frequency of maintenance updates is of at least once a year.

In order to help NRN2 data users in their management of the various update releases, updates are packaged and distributed by change effects (addition, retirement, modification, confirmation). By proceeding in this fashion, identification rules as well as methods for classifying the modifications are established.

Identification rules on how to unequivocally identify feature occurrences are defined in the document entitled National Vector Data – Identification Rules available on the GeoBase portal (<http://www.geobase.ca/>).

The methods for classifying updates by change effects (addition, retirement, modification and confirmation) are defined in the document National Vector data – Change Management available on the GeoBase portal (www.geobase.ca).

13.2 Reference to specification scope

Global (See 7.2)

14 Data product delivery

The National Standard only addresses the information content of the product specification and multiple encodings and product delivery mechanisms for the data are permitted. The GML encoding is identified as a neutral encoding³.

³ In addition to GML, the ESRI Shape file format and the Google Keyhole Markup Language (KML) have been identified as encodings

15 Metadata

15.1 Metadata general

The National Standard makes use of the North American Profile for Geographic Information Metadata and is based on the US FGDC metadata. The Metadata in this dataset complies with the FGDC CSDGM Metadata and the NAP Metadata Standard and may be provided in both forms.

15.2 Reference to specification scope

Global (See 7.2)

Withdrawn/Retirée

Appendix A

(Normative)

Abstract test suite

A.1 Test case for attribute assignment to feature classes

- a) Test purpose: Verify that all attributes associated to feature classes are provided.
- b) Test method: Check that all attributes that are defined for each feature class in the feature catalogue are provided.
- c) Reference: Appendix C
- d) Test type: Basic.

A.2 Test case for attribute domains

- a) Test purpose: Verify that attribute domains respect feature catalogue definition.
- b) Test method: Check that all attribute domains defined in the feature catalogue are respected.
- c) Reference: Appendix C
- d) Test type: Basic.

A.3 Test case for UUID data type

- a) Test purpose: Verify that UUID data type attributes are well defined.
- b) Test method: Check that UUID consists of a 16-byte record voided of padding between fields. The hexadecimal values "a" to "f" shall be lower case. The total size is 128 bits. For use as human-readable text, a UUID string representation (32 characters) is specified as a sequence of fields.
- c) Reference: Section 13
- d) Test type: Basic.

A.4 Test case for junction locations

- a) Test purpose: Verify that junctions are well positioned.
- b) Test method: Check that a junction is only present at same grade road intersections, at ferry connection and road interconnections, at network linear element dead-end and dataset limit.
- c) Reference: Appendix C, Junction definition
- d) Test type: Basic.

A.5 Test case for NID assignment on road element

- a) Test purpose: Verify that each road element is unequivocally identified by a NID.

- b) Test method: Check that each road element has its own NID. When a road element is formed by more than one contiguous road segments, each road segments shall have the same NID value from junction to junction.
- c) Reference: Section 4.9
- d) Test type: Basic.

A.6 Test case for feature duplication

- a) Test purpose: Verify that feature is not duplicated with another feature from the same class.
- b) Test method: Check that each feature is not duplicated with itself. Feature from the same class shall not be duplicated.
- c) Reference: Section 11.2.4
- d) Test type: Basic.

A.7 Test case for continuity between dataset

- a) Test purpose: Verify continuity at dataset limit.
- b) Test method: Check that linear feature at dataset limit is connected with linear feature from other neighboring dataset when it exists.
- c) Reference: Section 7.4.1
- d) Test type: Basic.

Appendix B

(Normative)

Conceptual Model

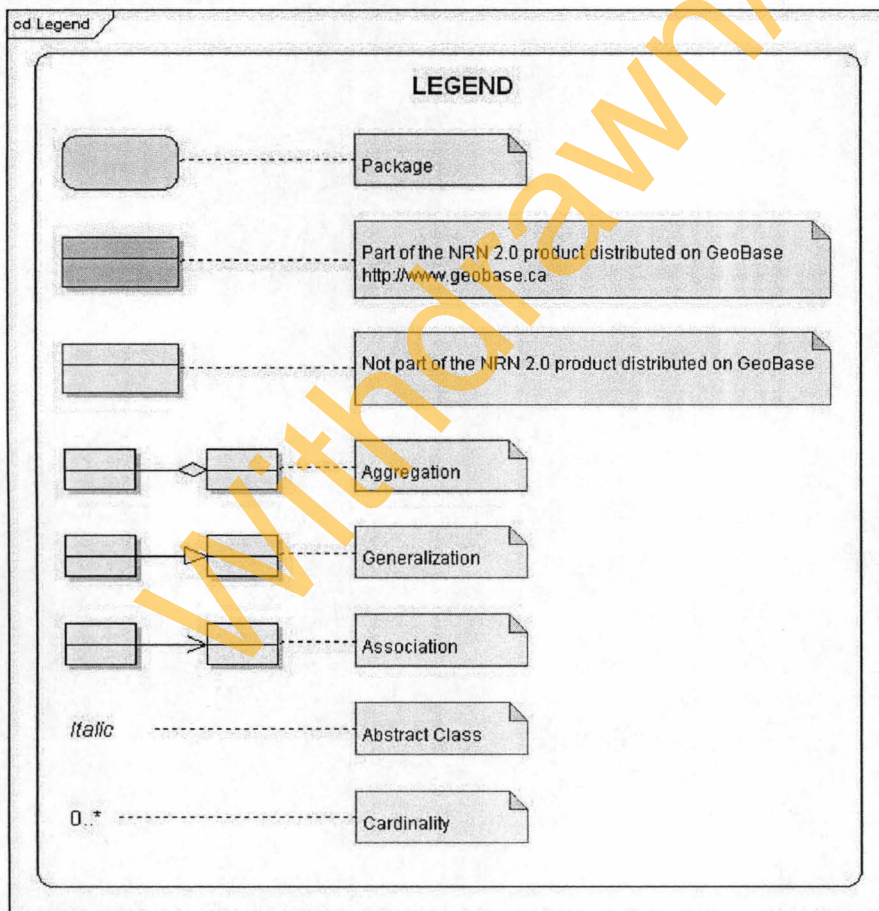
B.1 Overview

The National Road Network (NRN2) conceptual model was elaborated in collaboration with interested data providers and is adopted by the Canadian Council on Geomatics (CCOG). The standard ISO 14825 — *Intelligent transport systems — Geographic Data Files (GDF) — Overall data specification* served as a guide for the elaboration of the NRN2 conceptual model. The NRN2 vocabulary used (class names and attribute names) largely conforms to the ISO 14825.

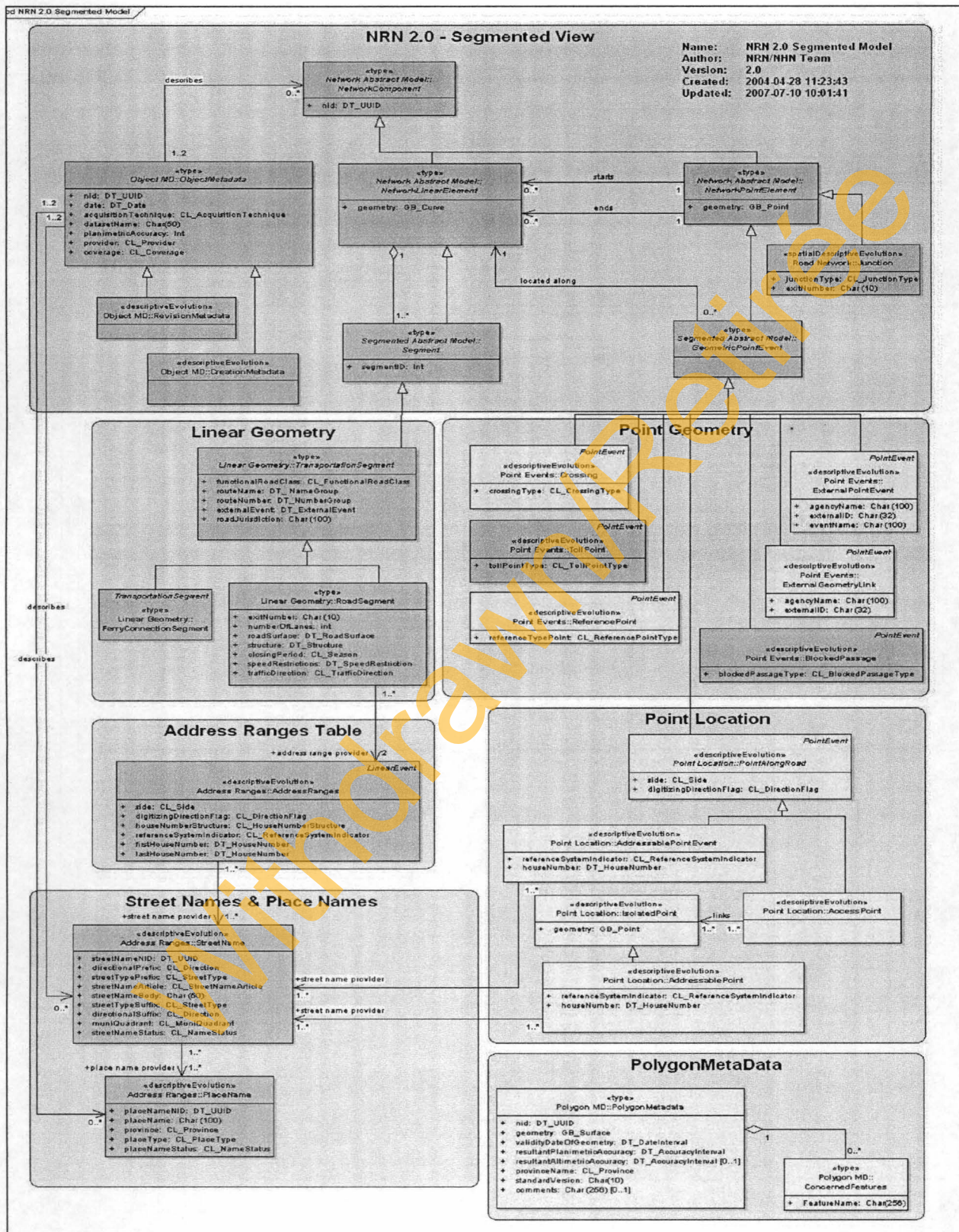
B.2 Model description

This document describes the NRN2 conceptual model according to a segmented view where segmentation is created on linear elements where an attribute value changes.

It also identifies classes and attributes that are part of the NRN2, Edition 2.0 product distributed on the GeoBase portal (www.geobase.ca). The conceptual model is represented using UML (Unified Modeling Language) notation. Refer to the following legend for more indications.



B.2.1 Segmented view



B.2.2 Data types and code lists

Data Types					
«DataType» DataType:DT_Date + date: Char(10)	«DataType» Segmented Only: DT_NameGroup + name1: DT_Names + name2: DT_Names + name3: DT_Names + name4: DT_Names	«DataType» Segmented Only: DT_NumberGroup + routeNumber1: Char(10) + routeNumber2: Char(10) + routeNumber3: Char(10) + routeNumber4: Char(10) + routeNumber5: Char(10)	«DataType» DataType:DT_HouseNumber + houseNumberingType: CL_HouseNumberingType + houseNumber: Int + houseNumberSuffix: Char(10)	«DataType» Segmented Only: DT_Structure + structureID: DT_UUID + structureType: CL_StructureType + names: DT_Names	«DataType» DataType:DT_AccuracyInterval + minimumAccuracy: Int + maximumAccuracy: Int
«DataType» DataType:DT_UUID + uuid: Char(32)					
«DataType» DataType:DT_ExternalEvent + agencyName: Char(100) + externalID: Char(32) + eventName: Char(100)	«DataType» DataType:DT_Names + frenchName: Char(100)[0..1] + englishName: Char(100)[0..1]	«DataType» Segmented Only: DT_SpeedRestriction + speedRestrictionLeft: Int + speedRestrictionRight: Int + speedRestrictionBoth: Int	«DataType» Segmented Only: DT_RoadSurface + pavementStatus: CL_PavedStatus + pavedRoadSurfaceType: CL_PavedRoadSurfaceType [0..1] + unpavedRoadSurfaceType: CL_UnpavedRoadSurfaceType [0..1]	«DataType» DataType:DT_DateInterval + minimumDate: DT_Date + maximumDate: DT_Date	

Code List		
Linear Geometry	Point Geometry	Junction
«CodeList» CodeList:CL_Season + unknown = -1; + none = 0; + summer = 1; + winter = 2;	«CodeList» CodeList:CL_BlockedPassageType + unknown = -1; + physical toll booth = 1; + removable = 2;	«CodeList» CodeList:CL_JunctionType + intersection = 1; + dead end = 2; + ferry = 3; + hatplover = 4;
«CodeList» CodeList:CL_PavedStatus + paved = 1; + unpaved = 2;	«CodeList» CodeList:CL_Toll PointType + unknown = -1; + pedestrian toll booth = 1; + virtual toll booth = 2; + hybrid = 3;	Object Metadata
«CodeList» CodeList:CL_PavedRoadSurfaceType + unknown = -1; + none = 0; + rigid = 1; + flexible = 2; + blots = 3;	«CodeList» CodeList:CL_CrossingType + other = 1; + pedestrian crosswalk = 2; + culvert = 3; + railway = 4;	«CodeList» CodeList:CL_AcquisitionTechnique + unknown = -1; + none = 0; + other = 1; + gps = 2; + orthoimage = 3; + orthophoto = 4; + vector data = 5; + paper map = 6; + field completion = 7; + raster data = 8; + digital elevation model = 9; + aerial photo = 10; + raw imagery data = 11; + computed = 12;
«CodeList» CodeList:CL_UnpavedRoadSurfaceType + unknown = -1; + none = 0; + gravel = 1; + dirt = 2;	«CodeList» CodeList:CL_ReferencePointType + other significant point = 1; + kilometrepost marker = 2;	«CodeList» CodeList:CL_Provider + other = 1; + federal = 2; + provincial/territorial = 3; + municipal = 4;
«CodeList» CodeList:CL_TrafficDirection + unknown = -1; + both directions = 1; + same direction = 2; + opposite direction = 3;		«CodeList» CodeList:CL_Coverage + unknown = -1; + complete = 1; + partial = 2;
«CodeList» CodeList:CL_StructureType + bridge = 1; + bridge covered = 2; + bridge movable = 3; + bridge unknown = 4; + tunnel = 5; + snowshed = 6; + dam = 7;		

Address Ranges & Point Location				
«CodeList» CodeList:CL_Side + left = 1; + right = 2;	«CodeList» CodeList:CL_DirectionFlag + same direction = 1; + opposite direction = 2; + N/A = 3;	«CodeList» CodeList:CL_HouseNumber Structure + unknown = -1; + none = 0; + even = 1; + odd = 2; + mixed = 3; + irregular = 4;	«CodeList» CodeList:CL_ReferenceSystemIndicator + unknown = -1; + none = 0; + civic = 1; + lot and concession = 2; + Q11 measured = 3; + Q11 civic = 4; + DLS townships = 5;	«CodeList» CodeList:CL_HouseNumberingType + unknown = -1; + none = 0; + actual located = 1; + actual unlocated = 2; + projected = 3; + interpolated = 4;

Street Names & Place Names						
«CodeList» CodeList:CL_Direction + none = 0; + north = 1; + north-east = 2; + south = 3; + east = 4; + east = 5; + east = 6; + west = 7; + west = 8; + north-west = 9; + north-west = 10; + north-east = 11; + north-east = 12; + south-west = 13; + south-west = 14; + south-east = 15; + south-east = 16;	«CodeList» CodeList:CL_StreetType + unknown = -1; + none = 0; + abbey = 1; + access = 2; + access = 3; + alley = 4; + complete list...	«CodeList» CodeList:CL_StreetNameArticle + none = 0; + la = 1; + le = 2; + f = 3; + de la = 4; + complete list...	«CodeList» CodeList:CL_MuniQuadrant + none = 0; + south-west = 1; + south-east = 2; + north-east = 3; + north-west = 4;	«CodeList» CodeList:CL_NameStatus + official = 1: Int + alternate = 2: Int	«CodeList» CodeList:CL_PlaceType + unknown = -1; + none = 0; + borough / borough = 1; + city / ville = 2; + complete list...	«CodeList» CodeList:CL_Province + Newfoundland and Labrador = 1; + Nova Scotia = 2; + Prince Edward Island = 3; + New Brunswick = 4; + Quebec = 5; + Ontario = 6; + Manitoba = 7; + Saskatchewan = 8; + Alberta = 9; + British Columbia = 10; + Yukon Territory = 11; + Northwest Territories = 12; + Nunavut = 13;

Appendix C

(Normative)

Feature Catalogue

C.1 Feature catalogue

C.1.1 Name

Canadian Geographic Information Standard National Road Network 2.0 Feature Catalogue

C.1.2 Scope

This feature catalogue describes the National Road Network (NRN2) product that is distributed on the GeoBase portal (<http://www.geobase.ca/>). It does not include the definition of features and attributes from the NRN2 conceptual model that are excluded from the GeoBase profile product. This Feature Catalogue complies with ISO 19110 *Geographic information - Methodology for feature cataloguing*.

C.1.3 Version number

2.0

C.1.4 Version Date

2007-05-31

C.1.5 Producer

Natural Resources Canada
Earth Sciences Sector
Centre for Topographic Information
2144, King Street West, Suite 010
Sherbrooke (Quebec) Canada, J1J 2E8

Telephone: 819-564-4857
1-800-661-2638 (Canada and USA)
Fax: 819-564-5698
E-mail: supportgeobase@nrcan.gc.ca
URL: <http://www.geobase.ca/>

C.1.6 Language

This feature catalogue is available in:

eng – English

fra – French

C.2. Attributes that are common to all features

The following attributes apply to all feature classes except for Alternate Name Link.

Object Metadata - (Métadonnées d'objet)

Attribute Name	Attribute Definition																																															
Acquisition Technique	The type of data source or technique used to populate (create or revise) the dataset.																																															
	Domain: <table><tr><th>Code</th><th>Label</th><th>Definition</th></tr><tr><td>-1</td><td>Unknown</td><td>Impossible to determine.</td></tr><tr><td>0</td><td>None</td><td>No value applies.</td></tr><tr><td>1</td><td>Other</td><td>All possible values not explicitly mentioned in the domain.</td></tr><tr><td>2</td><td>GPS</td><td>Data collected using a GPS device.</td></tr><tr><td>3</td><td>Orthoimage</td><td>Satellite imagery orthorectified.</td></tr><tr><td>4</td><td>Orthophoto</td><td>Aerial photo orthorectified.</td></tr><tr><td>5</td><td>Vector Data</td><td>Vector digital data.</td></tr><tr><td>6</td><td>Paper Map</td><td>Conventional sources of information like maps or plans.</td></tr><tr><td>7</td><td>Field Completion</td><td>Information gathered from people directly on the field.</td></tr><tr><td>8</td><td>Raster Data</td><td>Data resulting from a scanning process.</td></tr><tr><td>9</td><td>Digital Elevation Model</td><td>Data coming from a Digital Elevation Model (DEM).</td></tr><tr><td>10</td><td>Aerial Photo</td><td>Aerial photography not orthorectified.</td></tr><tr><td>11</td><td>Raw Imagery Data</td><td>Satellite imagery not orthorectified.</td></tr><tr><td>12</td><td>Computed</td><td>Geometric information that has been computed (not captured).</td></tr></table>			Code	Label	Definition	-1	Unknown	Impossible to determine.	0	None	No value applies.	1	Other	All possible values not explicitly mentioned in the domain.	2	GPS	Data collected using a GPS device.	3	Orthoimage	Satellite imagery orthorectified.	4	Orthophoto	Aerial photo orthorectified.	5	Vector Data	Vector digital data.	6	Paper Map	Conventional sources of information like maps or plans.	7	Field Completion	Information gathered from people directly on the field.	8	Raster Data	Data resulting from a scanning process.	9	Digital Elevation Model	Data coming from a Digital Elevation Model (DEM).	10	Aerial Photo	Aerial photography not orthorectified.	11	Raw Imagery Data	Satellite imagery not orthorectified.	12	Computed	Geometric information that has been computed (not captured).
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12	Computed	Geometric information that has been computed (not captured).																																														
Coverage	This value indicates if this set of metadata covers the full length of the Network Linear Element or only a portion of it.																																															
	Domain: <table><tr><th>Code</th><th>Label</th><th>Definition</th></tr><tr><td>-1</td><td>Unknown</td><td>Impossible to determine.</td></tr><tr><td>1</td><td>Complete</td><td>Metadata applies on the entire geometry or attribute event.</td></tr><tr><td>2</td><td>Partial</td><td>Metadata applies on a portion of the geometry or attribute event.</td></tr></table>			Code	Label	Definition	-1	Unknown	Impossible to determine.	1	Complete	Metadata applies on the entire geometry or attribute event.	2	Partial	Metadata applies on a portion of the geometry or attribute event.																																	
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2	Partial	Metadata applies on a portion of the geometry or attribute event.																																														

Attribute Name	Attribute Definition																																										
Creation Date	The date of data creation.																																										
	Domain: A date in the format YYYYMMDD or "Unknown". If the month or the day is unknown, corresponding characters are left blank. Examples: 20060630, 200606, 2006. Data Type: Character (8)																																										
Dataset Name	Province or Territory covered by the dataset.																																										
	Domain: <table><tr><th>Code</th><th>Label</th><th>Definition</th></tr><tr><td>1</td><td>Newfoundland and Labrador</td><td></td></tr><tr><td>2</td><td>Nova Scotia</td><td></td></tr><tr><td>3</td><td>Prince Edward Island</td><td></td></tr><tr><td>4</td><td>New Brunswick</td><td></td></tr><tr><td>5</td><td>Quebec</td><td></td></tr><tr><td>6</td><td>Ontario</td><td></td></tr><tr><td>7</td><td>Manitoba</td><td></td></tr><tr><td>8</td><td>Saskatchewan</td><td></td></tr><tr><td>9</td><td>Alberta</td><td></td></tr><tr><td>10</td><td>British Columbia</td><td></td></tr><tr><td>11</td><td>Yukon Territory</td><td></td></tr><tr><td>12</td><td>Northwest Territories</td><td></td></tr><tr><td>13</td><td>Nunavut</td><td></td></tr></table>	Code	Label	Definition	1	Newfoundland and Labrador		2	Nova Scotia		3	Prince Edward Island		4	New Brunswick		5	Quebec		6	Ontario		7	Manitoba		8	Saskatchewan		9	Alberta		10	British Columbia		11	Yukon Territory		12	Northwest Territories		13	Nunavut	
Code	Label	Definition																																									
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7	Manitoba																																										
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9	Alberta																																										
10	British Columbia																																										
11	Yukon Territory																																										
12	Northwest Territories																																										
13	Nunavut																																										
Planimetric Accuracy	The planimetric accuracy expressed in meters as the circular map accuracy standard (CMAS).																																										
	Domain: [1..n] Data Type: Integer																																										
Provider	The affiliation of the organization that generated (created or revised) the object.																																										
	Domain: <table><tr><th>Code</th><th>Label</th><th>Definition</th></tr><tr><td>1</td><td>Other</td><td>Other value.</td></tr><tr><td>2</td><td>Federal</td><td>Federal departments or agencies.</td></tr><tr><td>3</td><td>Provincial / Territorial</td><td>Provincial / territorial departments or agencies.</td></tr></table>	Code	Label	Definition	1	Other	Other value.	2	Federal	Federal departments or agencies.	3	Provincial / Territorial	Provincial / territorial departments or agencies.																														
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1	Other	Other value.																																									
2	Federal	Federal departments or agencies.																																									
3	Provincial / Territorial	Provincial / territorial departments or agencies.																																									

Attribute Name	Attribute Definition
	4 Municipal Municipal departments or agencies.
Revision Date	The date of data revision.
	<p>Domain: A date in the format YYYYMMDD or "Unknown". If the month or the day is unknown, corresponding characters are left blank.</p> <p>Examples: 20060630, 200606, 2006.</p> <p>Data Type: Character (8)</p>
Standard Version	The standard version associated to the features.
	<p>Domain: [2.0]</p> <p>Data Type: Character (100)</p>

Withdrawn/Retiré

C.3 Feature class

Feature Class:

Name - (french name)	Is Abstract	Geometry
Address Range - (<i>Intervalles d'adresse</i>)	No	
Definition		
A set of attributes representing the address of the first and last building located along a side of the entire Road Element or a portion of it.		

Attribute Section:

Attribute Name	Attribute Definition												
Alternate Street Name NID (left, right)	The identifier used to link an address range to its alternate street name. A specific value is defined for the left and right sides of the Road Element.												
	Domain: A UUID or "None" when no value applies. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)												
Digitizing Direction Flag (left, right)	Indicates if the attribute event follows the same direction as the digitizing of the Road Element. A specific value is defined for the left and right sides of the Road Element.												
	Domain: <table><tr><th>Code</th><th>Label</th><th>Definition</th></tr><tr><td>1</td><td>Same Direction</td><td>Attribute event and Road Element geometry are in the same direction.</td></tr><tr><td>2</td><td>Opposite Direction</td><td>Attribute event and Road Element geometry are in opposite directions.</td></tr><tr><td>3</td><td>Not Applicable</td><td>Indication of the digitizing direction of the Road Element not needed for the attribute event.</td></tr></table>	Code	Label	Definition	1	Same Direction	Attribute event and Road Element geometry are in the same direction.	2	Opposite Direction	Attribute event and Road Element geometry are in opposite directions.	3	Not Applicable	Indication of the digitizing direction of the Road Element not needed for the attribute event.
Code	Label	Definition											
1	Same Direction	Attribute event and Road Element geometry are in the same direction.											
2	Opposite Direction	Attribute event and Road Element geometry are in opposite directions.											
3	Not Applicable	Indication of the digitizing direction of the Road Element not needed for the attribute event.											
First House Number (left, right)	The first house number address value along a particular side (left or right) of a Road Element. A specific value is defined for the left and right sides of the Road Element.												
	Domain: [-1..n] The value "0" is used when no value applies. The value "-1" is used when the value is unknown. Data Type: Integer												
First House Number Suffix (left, right)	A non-integer value, such as a fraction (e.g. ¼) or a character (e.g. A) that sometimes follows the house number address value. A specific value is defined for the left and right sides of the Road Element.												
	Domain: A non-integer value or "None" when no value applies. Data Type: Character (10)												

First House Number Type (left, right)	Method used to populate the address range. A specific value is defined for the left and right sides of the Road Element.																							
	Domain: <table><tr><td>Code</td><td>Label</td><td>Definition</td></tr><tr><td>-1</td><td>Unknown</td><td>Due to the source, the house number type is not known.</td></tr><tr><td>0</td><td>None</td><td>Absence of a house along the Road Element.</td></tr><tr><td>1</td><td>Actual Located</td><td>Qualifier indicating that the house number is located at its "real world" position along a Road Element.</td></tr><tr><td>2</td><td>Actual Unlocated</td><td>Qualifier indicating that the house number is located at one end of the Road Element. This may be or may not be its "real world" position.</td></tr><tr><td>3</td><td>Projected</td><td>Qualifier indicating that the house number is planned, figured or estimated for the future and is located (at one end) at the beginning or the end of the Road Element.</td></tr><tr><td>4</td><td>Interpolated</td><td>Qualifier indicating that the house number is calculated from two known house numbers which are located on either side. By convention, the house is positioned at one end of the Road Element.</td></tr></table>			Code	Label	Definition	-1	Unknown	Due to the source, the house number type is not known.	0	None	Absence of a house along the Road Element.	1	Actual Located	Qualifier indicating that the house number is located at its "real world" position along a Road Element.	2	Actual Unlocated	Qualifier indicating that the house number is located at one end of the Road Element. This may be or may not be its "real world" position.	3	Projected	Qualifier indicating that the house number is planned, figured or estimated for the future and is located (at one end) at the beginning or the end of the Road Element.	4	Interpolated	Qualifier indicating that the house number is calculated from two known house numbers which are located on either side. By convention, the house is positioned at one end of the Road Element.
Code	Label	Definition																						
-1	Unknown	Due to the source, the house number type is not known.																						
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4	Interpolated	Qualifier indicating that the house number is calculated from two known house numbers which are located on either side. By convention, the house is positioned at one end of the Road Element.																						
House Number Structure (left, right)	The type of house numbering (or address numbering) method applied to one side of a particular Road Element. A specific value is defined for the left and right sides of the Road Element.																							
	Domain: <table><tr><td>Code</td><td>Label</td><td>Definition</td></tr><tr><td>-1</td><td>Unknown</td><td>Impossible to determine.</td></tr><tr><td>0</td><td>None</td><td>No house numbers at all. There are no houses (or addressed dwellings) along a particular side of a Road Element.</td></tr><tr><td>1</td><td>Even</td><td>The house numbers appear as even numbers in a sequentially sorted order (ascending or descending) when moving from one end of the Road Element to the other. Numeric completeness of the series is not a requirement. An even house number series that has missing numbers but is sequentially sorted is considered Even. An example is the series (2, 4, 8, 18, 22).</td></tr><tr><td>2</td><td>Odd</td><td>The house numbers appear as odd numbers in a sequentially sorted order (ascending or descending) when moving from one end of the Road Element to the other. Numeric completeness of the series is not a requirement.</td></tr></table>			Code	Label	Definition	-1	Unknown	Impossible to determine.	0	None	No house numbers at all. There are no houses (or addressed dwellings) along a particular side of a Road Element.	1	Even	The house numbers appear as even numbers in a sequentially sorted order (ascending or descending) when moving from one end of the Road Element to the other. Numeric completeness of the series is not a requirement. An even house number series that has missing numbers but is sequentially sorted is considered Even. An example is the series (2, 4, 8, 18, 22).	2	Odd	The house numbers appear as odd numbers in a sequentially sorted order (ascending or descending) when moving from one end of the Road Element to the other. Numeric completeness of the series is not a requirement.						
Code	Label	Definition																						
-1	Unknown	Impossible to determine.																						
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2	Odd	The house numbers appear as odd numbers in a sequentially sorted order (ascending or descending) when moving from one end of the Road Element to the other. Numeric completeness of the series is not a requirement.																						

			An odd house number series that has missing numbers but is sequentially sorted is considered Odd. Examples are the series (5, 7, 9, 11, 13) and (35, 39, 43, 69, 71, 73, 85).																		
	3	Mixed	The house numbers are odd and even on the same side of a Road Element in a sequentially sorted order (ascending or descending) when moving from one end of the Road Element to the other. Numeric completeness of the series is not a requirement. An odd and even house number series that has missing numbers but is sequentially sorted is considered Mixed. Examples are the series (5, 6, 7, 9, 10, 13) and (24, 27, 30, 33, 34, 36).																		
	4	Irregular	Means the house numbers do not occur in any sorted order.																		
Last House Number (left, right)	The last house number address value along a particular side (left or right) of a Road Element. A specific value is defined for the left and right sides of the Road Element.																				
	Domain: [-1..n] The value "0" is used when no value applies. The value "-1" is used when the value is unknown. Data Type: Integer																				
Last House Number Suffix (left, right)	A non-integer value, such as a fraction (e.g. ¼) or a character (e.g. A) that sometimes follows the house number address value. A specific value is defined for the left and right sides of the Road Element.																				
	Domain: A non-integer value or "None" when no value applies. Data Type: Character (10)																				
Last House Number Type (left, right)	Method used to populate the address range. A specific value is defined for the left and right sides of the Road Element.																				
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	4	Interpolated	Qualifier indicating that the house number is calculated from two known house numbers which are located on either side. By convention, the house is positioned at one end of the Road Element.																								
NID	A national unique identifier.																										
	Domain: A UUID. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)																										
Official Street Name NID (left, right)	The identifier used to link an address range to its recognized official street name. A specific value is defined for the left and right sides of the Road Element.																										
	Domain: A UUID or "None" when no value applies. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)																										
Reference System Indicator (left, right)	An indication of whether the physical address of all or a portion of a Road Element is based on a particular addressing system. A specific value is defined for the left and right sides of the Road Element.																										
	Domain: <table><thead><tr><th>Code</th><th>Label</th><th>Definition</th></tr></thead><tbody><tr><td>-1</td><td>Unknown</td><td>Impossible to determine.</td></tr><tr><td>0</td><td>None</td><td>No reference system indicator.</td></tr><tr><td>1</td><td>Civic</td><td></td></tr><tr><td>2</td><td>Lot and Concession</td><td></td></tr><tr><td>3</td><td>911 Measured</td><td></td></tr><tr><td>4</td><td>911 Civic</td><td></td></tr><tr><td>5</td><td>DLS Townships</td><td>Dominion Land Survey, survey method dominant in the Prairie provinces.</td></tr></tbody></table>			Code	Label	Definition	-1	Unknown	Impossible to determine.	0	None	No reference system indicator.	1	Civic		2	Lot and Concession		3	911 Measured		4	911 Civic		5	DLS Townships	Dominion Land Survey, survey method dominant in the Prairie provinces.
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5	DLS Townships	Dominion Land Survey, survey method dominant in the Prairie provinces.																									
Object Metadata	Refer to the attributes describe in the section object metadata.																										

Feature Class:

Name - (<i>french name</i>)	Is Abstract	Geometry
Alternate Name Link - (<i>Lien nom non officiel</i>)	No	
Definition		
A linkup table establishing one or many relations between address ranges and their non-official street and place names used or known by the general public.		

Attribute Section:

Attribute Name	Attribute Definition																								
NID	A national unique identifier.																								
	Domain: A UUID. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)																								
Street Name NID	The NID of the non official street and place name.																								
	Domain: A UUID. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)																								
Creation Date	The date of data creation.																								
	Domain: A date in the format YYYYMMDD or "Unknown". If the month or the day is unknown, corresponding characters are left blank. Examples: 20060630, 200606, 2006. Data Type: Character (8)																								
Dataset Name	Province or Territory covered by the dataset.																								
	Domain: <table><tr><th>Code</th><th>Label</th><th>Definition</th></tr><tr><td>1</td><td>Newfoundland and Labrador</td><td></td></tr><tr><td>2</td><td>Nova Scotia</td><td></td></tr><tr><td>3</td><td>Prince Edward Island</td><td></td></tr><tr><td>4</td><td>New Brunswick</td><td></td></tr><tr><td>5</td><td>Quebec</td><td></td></tr><tr><td>6</td><td>Ontario</td><td></td></tr><tr><td>7</td><td>Manitoba</td><td></td></tr></table>	Code	Label	Definition	1	Newfoundland and Labrador		2	Nova Scotia		3	Prince Edward Island		4	New Brunswick		5	Quebec		6	Ontario		7	Manitoba	
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7	Manitoba																								

	8 Saskatchewan
	9 Alberta
	10 British Columbia
	11 Yukon Territory
	12 Northwest Territories
	13 Nunavut
Revision Date	The date of data revision.
	<p>Domain: A date in the format YYYYMMDD or "Unknown". If the month or the day is unknown, corresponding characters are left blank. Examples: 20060630, 200606, 2006.</p> <p>Data Type: Character (8)</p>
Standard Version	The standard version associated to the features.
	<p>Domain: 2.0</p> <p>Data Type: Character (100)</p>

Feature Class:

Name - (french name)	Is Abstract	Geometry
Blocked Passage - (Passage obstrué)	No	Point
Definition		
Indication of a physical barrier on a Road Element built to prevent or control further access.		

Attribute Section:

Attribute Name	Attribute Definition												
Blocked Passage Type	The type of blocked passage as an indication of the fact whether it is removable.												
	<p>Domain:</p> <table><tr><th>Code</th><th>Label</th><th>Definition</th></tr><tr><td>-1</td><td>Unknown</td><td>A blocked passage for which the specific type is unknown.</td></tr><tr><td>1</td><td>Permanently Fixed</td><td>The barrier cannot be removed without destroying it. Heavy equipment needed in order to allow further access. Examples of permanently fixed blocked passage are concrete blocks or a mound of earth.</td></tr><tr><td>2</td><td>Removable</td><td>The barrier is designed to free the entrance to the (other side of the) Road Element that it is blocking. Further access easily allowed when so desired.</td></tr></table>	Code	Label	Definition	-1	Unknown	A blocked passage for which the specific type is unknown.	1	Permanently Fixed	The barrier cannot be removed without destroying it. Heavy equipment needed in order to allow further access. Examples of permanently fixed blocked passage are concrete blocks or a mound of earth.	2	Removable	The barrier is designed to free the entrance to the (other side of the) Road Element that it is blocking. Further access easily allowed when so desired.
Code	Label	Definition											
-1	Unknown	A blocked passage for which the specific type is unknown.											
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NID	A national unique identifier.												
	<p>Domain: A UUID. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)</p>												
Road Element NID	The NID of the Road Element on which the point geometry is located.												
	<p>Domain: A UUID. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)</p>												
Object Metadata	Refer to the attributes describe in the section object metadata.												

Feature Class:

Name - (french name)	Is Abstract	Geometry
Ferry Connection Segment - (<i>Segment de liaison par transbordeur</i>)	No	Line
Definition		
The average route a ferryboat takes when transporting vehicles between two fixed locations on the road network.		

Attribute Section:

Attribute Name	Attribute Definition																													
Ferry Segment ID	A unique identifier within a dataset assigned to each Ferry Connection Segment.																													
	Domain: [1..n] Data Type: Integer																													
Functional Road Class	A classification based on the importance of the role that the Road Element or Ferry Connection performs in the connectivity of the total road network.																													
	Domain: <table><thead><tr><th>Code</th><th>Label</th><th>Definition</th></tr></thead><tbody><tr><td>1</td><td>Freeway</td><td>An unimpeded, high-speed controlled access thoroughfare for through traffic with typically no at-grade intersections, usually with no property access or direct access, and which is accessed by a ramp. Pedestrians are prohibited.</td></tr><tr><td>2</td><td>Expressway / Highway</td><td>A high-speed thoroughfare with a combination of controlled access intersections at any grade.</td></tr><tr><td>3</td><td>Arterial</td><td>A major thoroughfare with medium to large traffic capacity.</td></tr><tr><td>4</td><td>Collector</td><td>A minor thoroughfare mainly used to access properties and to feed traffic with right of way.</td></tr><tr><td>5</td><td>Local / Street</td><td>A low-speed thoroughfare dedicated to provide full access to the front of properties.</td></tr><tr><td>6</td><td>Local / Strata</td><td>A low-speed thoroughfare dedicated to provide access to properties with potential public restriction such as: trailer parks, First Nations, strata, private estates, seasonal residences.</td></tr><tr><td>7</td><td>Local / Unknown</td><td>A low-speed thoroughfare dedicated to provide access to the front of properties but for which the access regulations are unknown.</td></tr><tr><td>8</td><td>Alleyway / Lane</td><td>A low-speed thoroughfare dedicated to provide access to the rear of properties.</td></tr></tbody></table>			Code	Label	Definition	1	Freeway	An unimpeded, high-speed controlled access thoroughfare for through traffic with typically no at-grade intersections, usually with no property access or direct access, and which is accessed by a ramp. Pedestrians are prohibited.	2	Expressway / Highway	A high-speed thoroughfare with a combination of controlled access intersections at any grade.	3	Arterial	A major thoroughfare with medium to large traffic capacity.	4	Collector	A minor thoroughfare mainly used to access properties and to feed traffic with right of way.	5	Local / Street	A low-speed thoroughfare dedicated to provide full access to the front of properties.	6	Local / Strata	A low-speed thoroughfare dedicated to provide access to properties with potential public restriction such as: trailer parks, First Nations, strata, private estates, seasonal residences.	7	Local / Unknown	A low-speed thoroughfare dedicated to provide access to the front of properties but for which the access regulations are unknown.	8	Alleyway / Lane	A low-speed thoroughfare dedicated to provide access to the rear of properties.
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	9	Ramp	A system of interconnecting roadways providing for the controlled movement between two or more roadways.
	10	Resource / Recreation	A narrow passage whose primary function is to provide access for resource extraction and may also have serve in providing public access to the backcountry.
	11	Rapid Transit	A thoroughfare restricted to public transit buses.
	12	Service Lane	A stretch of road permitting vehicles to come to a stop along a freeway or highway. Scale, service lane, emergency lane, lookout, and rest area.
	13	Winter	A road that is only useable during the winter when conditions allow for passage over lakes, rivers, and wetlands.
NID	A national unique identifier.		
	Domain: A UUID. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)		
Route Name English (1, 2, 3, 4)	The English version of a name of a particular route in a given road network as attributed by a national or sub national agency. A particular Road Segment or Ferry Connection Segment can belong to more than one named route. In such cases, it has multiple route name attributes.		
	Domain: A complete English route name value such as "TransCanada Highway" or "None" when no value applies or "Unknown" when the value is not known. Data Type: Character (100)		
Route Name French (1, 2, 3, 4)	The French version of a name of a particular route in a given road network as attributed by a national or sub national agency. A particular Road Segment or Ferry Connection Segment can belong to more than one named route. In such cases, it has multiple route name attributes.		
	Domain: A complete French route name value such as "Autoroute transcanadienne" or "None" when no value applies or "Unknown" when the value is not known. Data Type: Character (100)		
Route Number (1, 2, 3, 4, 5)	The ID number of a particular route in a given road network as attributed by a national or sub-national agency. A particular Road Segment or Ferry Connection Segment can belong to more than one numbered route. In such cases, it has multiple route number attributes.		
	Domain: A route number including possible associated non-integer characters such as "A" or "None" when no value applies. Examples: 1, 1A, 230-A, 430-28. Data Type: Character (10)		
Object Metadata	Refer to the attributes describe in the section object metadata.		

Feature Class:

Name - (french name)	Is Abstract	Geometry
Junction - (Jonction)	No	Point
Definition		
A feature that bounds a Road Element or a Ferry Connection. A Road Element or Ferry Connection always forms a connection between two Junctions and, a Road Element or Ferry Connection is always bounded by exactly two Junctions. A Junction Feature represents the physical connection between its adjoining Road Elements or Ferry Connections. A Junction is defined at the intersection of three or more roads, at the junction of a road and a ferry, at the end of a dead end road and at the junction of a road or ferry with a National, Provincial or Territorial Boundary.		

Attribute Section:

Attribute Name	Attribute Definition															
Exit Number	The ID number of an exit on a controlled access thoroughfare that has been assigned by an administering body.															
	Domain: An ID number including possible associated non-integer characters such as "A" or "None" when no value applies. Examples: 11, 11A, 11-A, 80-EST, 80-E, 80E. Data Type: Character (10)															
Junction Type	The classification of a Junction.															
	Domain: <table><tr><th>Code</th><th>Label</th><th>Definition</th></tr><tr><td>1</td><td>Intersection</td><td>An intersection between three or more Road Elements intersecting at same grade level.</td></tr><tr><td>2</td><td>Dead End</td><td>A specific Junction that indicates that a Road Element ends and is not connected to any other Road Element or Ferry Connection.</td></tr><tr><td>3</td><td>Ferry</td><td>A specific Junction that indicates that a Road Element connects to a Ferry Connection.</td></tr><tr><td>4</td><td>NatProvTer</td><td>A specific Junction at the limit of a dataset indicating that a Road Element or Ferry Connection continues into the adjacent dataset.</td></tr></table>	Code	Label	Definition	1	Intersection	An intersection between three or more Road Elements intersecting at same grade level.	2	Dead End	A specific Junction that indicates that a Road Element ends and is not connected to any other Road Element or Ferry Connection.	3	Ferry	A specific Junction that indicates that a Road Element connects to a Ferry Connection.	4	NatProvTer	A specific Junction at the limit of a dataset indicating that a Road Element or Ferry Connection continues into the adjacent dataset.
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Object Metadata	Refer to the attributes describe in the section object metadata.															

Feature Class:

Name - (french name)	Is Abstract	Geometry
Road Segment - (Segment routier)	No	Line
Definition		
A road is a linear section of the earth designed for or the result of vehicular movement. A Road Segment is the specific representation of a portion of a road with uniform characteristics.		

Attribute Section:

Attribute Name	Attribute Definition												
Address Range Digitizing Direction Flag (left, right)	Indicates if the attribute event follows the same direction as the digitizing of the Road Element. A specific value is defined for the left and right sides of the Road Element.												
	Domain: <table><tr><th>Code</th><th>Label</th><th>Definition</th></tr><tr><td>1</td><td>Same Direction</td><td>Attribute event and Road Element geometry are in the same direction.</td></tr><tr><td>2</td><td>Opposite Direction</td><td>Attribute event and Road Element geometry are in opposite directions.</td></tr><tr><td>3</td><td>Not Applicable</td><td>Indication of the digitizing direction of the Road Element not needed for the attribute event.</td></tr></table>	Code	Label	Definition	1	Same Direction	Attribute event and Road Element geometry are in the same direction.	2	Opposite Direction	Attribute event and Road Element geometry are in opposite directions.	3	Not Applicable	Indication of the digitizing direction of the Road Element not needed for the attribute event.
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2	Opposite Direction	Attribute event and Road Element geometry are in opposite directions.											
3	Not Applicable	Indication of the digitizing direction of the Road Element not needed for the attribute event.											
Address Range NID	A UUID assigned to each particular block face address ranges.												
	Domain: A UUID or "None" when no value applies. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)												
Exit Number	The ID number of an exit on a controlled access thoroughfare that has been assigned by an administrating body.												
	Domain: An ID number including possible associated non-integer characters such as "A" or "None" when no value applies. Examples: 11, 11A, 11-A, 80-EST, 80-E, 80E. Data Type: Character (10)												
First House Number (left, right)	The first house number address value along a particular side (left or right) of a Road Element. A specific value is defined for the left and right sides of the Road Element.												
	Domain: [-1..n] The value "0" is used when no value applies. The value "-1" is used when the value is unknown. Data Type: Integer												
Functional Road	A classification based on the importance of the role that the Road Element or Ferry												

Class	Connection performs in the connectivity of the total road network.		
	Domain:		
	Code	Label	Definition
	1	Freeway	An unimpeded, high-speed controlled access thoroughfare for through traffic with typically no at-grade intersections, usually with no property access or direct access, and which is accessed by a ramp. Pedestrians are prohibited.
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	9	Ramp	A system of interconnecting roadways providing for the controlled movement between two or more roadways.
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	11	Rapid Transit	A thoroughfare restricted to public transit buses.
	12	Service Lane	A stretch of road permitting vehicles to come to a stop along a freeway or highway. Scale, service lane, emergency lane, lookout, and rest area.
	13	Winter	A road that is only useable during the winter when conditions allow for passage over lakes, rivers, and wetlands.
Last House Number (left, right)	The last house number address value along a particular side (left or right) of a Road Element. A specific value is defined for the left and right sides of the Road Element.		
	Domain: [-1..n] The value "0" is used when no value applies. The value "-1" is used		

	when the value is unknown. Data Type: Integer																		
NID	A national unique identifier.																		
	Domain: A UUID. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)																		
Number Of Lanes	The number of lanes existing on a Road Element.																		
	Domain: [1..8] Data Type: Integer																		
Official Place Name (left, right)	Official name of an administrative area, district or other named area which is required for uniqueness of the street name.																		
	Domain: Derived from the Street and place names table. A specific value is defined for the left and right sides of the Road Element. Data Type: Character (100)																		
Official Street Name Concatenated (left, right)	A concatenation of the officially recognized Directional prefix, Street type prefix, Street name article, Street name body, Street type suffix, Directional suffix and Muni quadrant values.																		
	Domain: Derived from the Street and place names table. A specific value is defined for the left and right sides of the Road Element. Data Type: Character (100)																		
Paved Road Surface Type	The type of surface a paved Road Element has.																		
	Domain: <table><thead><tr><th>Code</th><th>Label</th><th>Definition</th></tr></thead><tbody><tr><td>-1</td><td>Unknown</td><td>A paved road with an unknown surface type.</td></tr><tr><td>0</td><td>None</td><td>No value applies.</td></tr><tr><td>1</td><td>Rigid</td><td>A paved road with a rigid surface such as concrete or steel decks.</td></tr><tr><td>2</td><td>Flexible</td><td>A paved road with a flexible surface such as asphalt or tar gravel.</td></tr><tr><td>3</td><td>Blocks</td><td>A paved road with a surface made of blocks such as cobblestones.</td></tr></tbody></table>	Code	Label	Definition	-1	Unknown	A paved road with an unknown surface type.	0	None	No value applies.	1	Rigid	A paved road with a rigid surface such as concrete or steel decks.	2	Flexible	A paved road with a flexible surface such as asphalt or tar gravel.	3	Blocks	A paved road with a surface made of blocks such as cobblestones.
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Pavement Status	An indication of improvement applied to a Road surface.																		
	Domain: <table><thead><tr><th>Code</th><th>Label</th><th>Definition</th></tr></thead><tbody><tr><td>1</td><td>Paved</td><td>A road with a surface made of hardened material such as concrete, asphalt, tar gravel, or steel</td></tr></tbody></table>	Code	Label	Definition	1	Paved	A road with a surface made of hardened material such as concrete, asphalt, tar gravel, or steel												
Code	Label	Definition																	
1	Paved	A road with a surface made of hardened material such as concrete, asphalt, tar gravel, or steel																	

	decks.
	2 Unpaved A road with a surface made of loose material such as gravel or dirt.
Road Segment ID	A unique identifier within a dataset assigned to each instance of Road Segment.
	Domain: [1..n] Data Type: Integer
Route Name English (1, 2, 3, 4)	The English version of a name of a particular route in a given road network as assigned by a national or sub national agency. A particular Road Segment or Ferry Connection Segment can belong to more than one named route. In such cases, it has multiple route name attributes.
	Domain: A complete English route name value such as "TransCanada Highway" or "None" when no value applies or "Unknown" when the value is not known. Data Type: Character (100)
Route Name French (1, 2, 3, 4)	The French version of a name of a particular route in a given road network as assigned by a national or sub national agency. A particular Road Segment or Ferry Connection Segment can belong to more than one named route. In such cases, it has multiple route name attributes.
	Domain: A complete French Route Name value such as "Autoroute transcanadienne" or "None" when no value applies or "Unknown" when the value is not known. Data Type: Character (100)
Route Number (1, 2, 3, 4, 5)	The ID number of a particular route in a given road network as assigned by a national or sub-national agency. A particular Road Segment or Ferry Connection Segment can belong to more than one numbered route. In such cases, it has multiple route number attributes.
	Domain: A route number including possible associated non-integer characters such as "A" or "None" when no value applies. Examples: 1, 1A, 230-A, 430-28. Data Type: Character (100)
Structure ID	A national unique identifier assigned to the Road Segment or the set of adjoining Road Segments forming a structure. This identifier allows for the reconstitution of a structure that is fragmented by Junctions.
	Domain: A UUID or "None" when no value applies. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)
Structure Name English	The English version of the name of a road structure as assigned by a national or subnational agency.
	Domain: A complete structure name or "None" when no value applies or "Unknown" when the structure name is not known. Data Type: Character (100)
Structure Name	The French version of the name of a road structure as assigned by a national or

French	subnational agency.																													
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Structure Type	The classification of a structure.																													
	Domain: <table><tr><th>Code</th><th>Label</th><th>Definition</th></tr><tr><td>0</td><td>None</td><td>No value applies.</td></tr><tr><td>1</td><td>Bridge</td><td>A manmade construction that supports a road on a raised structure and spans an obstacle, river, another road, or railway.</td></tr><tr><td>2</td><td>Bridge covered</td><td>A manmade construction that supports a road on a covered raised structure and spans an obstacle, river, another road, or railway.</td></tr><tr><td>3</td><td>Bridge moveable</td><td>A manmade construction that supports a road on a moveable raised structure and spans an obstacle, river, another road, or railway.</td></tr><tr><td>4</td><td>Bridge unknown</td><td>A bridge for which it is currently impossible to determine whether its structure is covered, moveable or other.</td></tr><tr><td>5</td><td>Tunnel</td><td>An enclosed manmade construction built to carry a road through or below a natural feature or other obstructions.</td></tr><tr><td>6</td><td>Snow shed</td><td>A manmade roofed structure built over a road in mountainous areas to prevent snow slides from blocking the road.</td></tr><tr><td>7</td><td>Dam</td><td>A manmade linear structure built across a waterway or floodway to control the flow of water and supporting a road for motor vehicles.</td></tr></table>			Code	Label	Definition	0	None	No value applies.	1	Bridge	A manmade construction that supports a road on a raised structure and spans an obstacle, river, another road, or railway.	2	Bridge covered	A manmade construction that supports a road on a covered raised structure and spans an obstacle, river, another road, or railway.	3	Bridge moveable	A manmade construction that supports a road on a moveable raised structure and spans an obstacle, river, another road, or railway.	4	Bridge unknown	A bridge for which it is currently impossible to determine whether its structure is covered, moveable or other.	5	Tunnel	An enclosed manmade construction built to carry a road through or below a natural feature or other obstructions.	6	Snow shed	A manmade roofed structure built over a road in mountainous areas to prevent snow slides from blocking the road.	7	Dam	A manmade linear structure built across a waterway or floodway to control the flow of water and supporting a road for motor vehicles.
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	movements over that road which inhibit further growth of any vegetation.
Object Metadata	Refer to the attributes describe in the section object metadata.

Feature Class:

Name - (<i>french name</i>)	Is Abstract	Geometry
Street and Place Names - (<i>Noms de rue et de lieu</i>)	No	
Definition		
A street name recognized by the municipality or naming authority and a name of an administrative area, district or other named area which is required for uniqueness of the street name.		

Attribute Section:

Attribute Name	Attribute Definition																																																
Directional Prefix	A geographic direction that is part of the street name and precedes the street name body or, if appropriate, the street type prefix.																																																
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Muni Quadrant	The attribute Muni quadrant is used in some addresses much like the directional attributes where the town is divided into sections based on major east-west and north-south divisions. The effect is as if multiple directional were used.																																																						
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Place Name	Name of an administrative area, district or other named area which is required for uniqueness of the street name.																																													
	Domain: The complete name of the place. Examples: Arnold's Cove, Saint-Jean-Baptiste-de-l'Île-Verte, Sault Ste. Marie, Grand-Sault, Grand Falls. Data Type: Character (100)																																													
Place Type	Expression specifying the type of place.																																													
	Domain: Listed values may be incomplete. Data Type: Character (100) <table><tr><th>Code</th><th>Label</th><th>Definition</th></tr><tr><td></td><td>None</td><td>No value applies.</td></tr><tr><td></td><td>Borough / Borough</td><td></td></tr><tr><td></td><td>Chartered Community</td><td></td></tr><tr><td></td><td>City / Cité</td><td></td></tr><tr><td></td><td>City / Ville</td><td></td></tr><tr><td></td><td>Community / Communauté</td><td></td></tr><tr><td></td><td>County (Municipality) / Comté (Municipalité)</td><td></td></tr><tr><td></td><td>Cree Village / Village Cri</td><td></td></tr><tr><td></td><td>Crown Colony / Colonie de la couronne</td><td></td></tr><tr><td></td><td>District (Municipality) / District (Municipalité)</td><td></td></tr><tr><td></td><td>Hamlet / Hameau</td><td></td></tr><tr><td></td><td>Improvement District</td><td></td></tr><tr><td></td><td>Indian Government District</td><td></td></tr><tr><td></td><td>Indian Reserve / Réserve indienne</td><td></td></tr></table>	Code	Label	Definition		None	No value applies.		Borough / Borough			Chartered Community			City / Cité			City / Ville			Community / Communauté			County (Municipality) / Comté (Municipalité)			Cree Village / Village Cri			Crown Colony / Colonie de la couronne			District (Municipality) / District (Municipalité)			Hamlet / Hameau			Improvement District			Indian Government District			Indian Reserve / Réserve indienne	
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	Island Municipality
	Local Government District
	Lot / Lot
	Municipal District / District municipal
	Municipality / Municipalité
	Naskapi Village / Village Naskapi
	Nisga'a land / Terre Nisga'a
	Nisga'a Village / Village Nisga'a
	Northern Hamlet / Hameau nordique
	Northern Town / Ville nordique
	Northern Village / Village nordique
	Parish (Municipality) / Paroisse (Municipalité)
	Parish / Paroisse
	Region / Région
	Regional District Electoral Area
	Regional Municipality / Municipalité régionale
	Resort Village / Centre de villégiature
	Rural Community
	Rural Municipality / Municipalité rurale
	Settlement / Établissement
	Special Area

	<p>Specialized Municipality / Municipalité spécialisée</p> <p>Subdivision of County Municipality</p> <p>Subdivision of Regional District</p> <p>Subdivision of Unorganized</p> <p>Summer Village / Village estival</p> <p>Terre inuite</p> <p>Terres réservées</p> <p>Teslin land / Terre Teslin</p> <p>Town / Ville</p> <p>Township (Municipality) / Canton (Municipalité)</p> <p>Township / Canton</p> <p>United Township (Municipality) / Cantons- unis (Municipalité)</p> <p>Unorganized / Non- organisé</p> <p>Village / Village</p> <p>Without Designation (Municipality) / Sans désignation (Municipalité)</p>																					
Province	Province or Territory where the place is located.																					
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Street Name Body	The portion of the street name (either official or alternate) that has the most identifying power excluding street type and directional prefixes or suffixes and street name articles.																																																															
	<p>Domain: The complete street name body or "None" when no value applies. Examples: Capitale, Trésor, Golf, Abbott, Abbott's, Main, Church, Park, Bread and Cheese.</p> <p>Data Type: Character (100)</p>																																																															
Street Type Prefix	A part of the street name of a Road Element identifying the street type. A prefix precedes the street name body of a Road Element.																																																															
	<p>Domain: Listed values may be incomplete. Data Type: Character (30)</p> <table><thead><tr><th>Code</th><th>Label</th><th>Definition</th></tr></thead><tbody><tr><td></td><td>None</td><td>No value applies.</td></tr><tr><td></td><td>Abbey</td><td></td></tr><tr><td></td><td>Access</td><td></td></tr><tr><td></td><td>Acres</td><td></td></tr><tr><td></td><td>Aire</td><td></td></tr><tr><td></td><td>Allée</td><td></td></tr><tr><td></td><td>Alley</td><td></td></tr><tr><td></td><td>Autoroute</td><td></td></tr><tr><td></td><td>Avenue</td><td></td></tr><tr><td></td><td>Barrage</td><td></td></tr><tr><td></td><td>Bay</td><td></td></tr><tr><td></td><td>Beach</td><td></td></tr><tr><td></td><td>Bend</td><td></td></tr><tr><td></td><td>Bloc</td><td></td></tr><tr><td></td><td>Block</td><td></td></tr><tr><td></td><td>Boulevard</td><td></td></tr><tr><td></td><td>Bourg</td><td></td></tr><tr><td></td><td>Brook</td><td></td></tr><tr><td></td><td>By-pass</td><td></td></tr><tr><td></td><td>Byway</td><td></td></tr></tbody></table>	Code	Label	Definition		None	No value applies.		Abbey			Access			Acres			Aire			Allée			Alley			Autoroute			Avenue			Barrage			Bay			Beach			Bend			Bloc			Block			Boulevard			Bourg			Brook			By-pass			Byway	
Code	Label	Definition																																																														
	None	No value applies.																																																														
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	Bourg																																																															
	Brook																																																															
	By-pass																																																															
	Byway																																																															

	Campus
	Cape
	Carre
	Carrefour
	Centre
	Cercle
	Chase
	Chemin
	Circle
	Circuit
	Close
	Common
	Concession
	Corners
	Côte
	Cour
	Court
	Cove
	Crescent
	Croft
	Croissant
	Crossing
	Crossroads
	Cul-de-sac
	Dale
	Dell
	Desserte
	Diversion
	Downs
	Drive

Droit de passage

Échangeur

End

Esplanade

Estates

Expressway

Extension

Farm

Field

Forest

Front

Gardens

Gate

Glade

Glen

Green

Grounds

Grove

Harbour

Haven

Heath

Heights

Highlands

Highway

Hill

Hollow

Île

Impasse

Island

Key

	Knoll
	Landing
	Lane
	Laneway
	Limits
	Line
	Link
	Lookout
	Loop
	Mall
	Manor
	Maze
	Meadow
	Mews
	Montée
	Moor
	Mount
	Mountain
	Orchard
	Parade
	Parc
	Park
	Parkway
	Passage
	Path
	Pathway
	Peak
	Pines
	Place
	Plateau

	Plaza
	Point
	Port
	Private
	Promenade
	Quay
	Rang
	Range
	Reach
	Ridge
	Right of Way
	Rise
	Road
	Rond Point
	Route
	Row
	Rue
	Ruelle
	Ruisseau
	Run
	Section
	Sentier
	Side road
	Square
	Street
	Stroll
	Subdivision
	Terrace
	Terrasse
	Thicket

	<p>Towers</p> <p>Townline</p> <p>Trace</p> <p>Trail</p> <p>Trunk</p> <p>Turnabout</p> <p>Vale</p> <p>Via</p> <p>View</p> <p>Village</p> <p>Vista</p> <p>Voie</p> <p>Walk</p> <p>Way</p> <p>Wharf</p> <p>Wood</p> <p>Woods</p> <p>Wynd</p>
Street Type Suffix	A part of the street name of a Road Element identifying the street type. A suffix follows the street name body of a Road Element.
	<p>Domain: Same domain as the attribute street type prefix.</p> <p>Data Type: Character (30)</p>
Object Metadata	Refer to the attributes describe in the section object metadata.

Feature Class:

Name - (french name)	Is Abstract	Geometry
Toll Point - (Poste de péage)	No	Point
Definition		
Place where a right-of-way is charged to gain access to a motorway, a bridge, etc.		

Attribute Section:

Attribute Name	Attribute Definition																		
NID	A national unique identifier.																		
	Domain: A UUID. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)																		
Road Element NID	The NID of the Road Element on which the point geometry is located.																		
	Domain: A UUID. Example: 69822b23d217494896014e57a2edb8ac Data Type: Character (32)																		
Toll Point Type	The type of toll point.																		
	<table><tr><th colspan="2">Domain:</th><th></th></tr><tr><th>Code</th><th>Label</th><th>Definition</th></tr><tr><td>-1</td><td>Unknown</td><td>A toll point for which it is currently impossible to determine the specific type.</td></tr><tr><td>1</td><td>Physical Toll Booth</td><td>A toll booth is a construction along or across the road where toll can be paid to employees of the organization in charge of collecting the toll, to machines capable of automatically recognizing coins or bills or to machines involving electronic methods of payment like credit cards or bank cards.</td></tr><tr><td>2</td><td>Virtual Toll Booth</td><td>At a virtual point of toll payment, toll will be charged via automatic registration of the passing vehicle by subscription or invoice.</td></tr><tr><td>3</td><td>Hybrid</td><td>Hybrid signifies a toll booth which is both physical and virtual.</td></tr></table>	Domain:			Code	Label	Definition	-1	Unknown	A toll point for which it is currently impossible to determine the specific type.	1	Physical Toll Booth	A toll booth is a construction along or across the road where toll can be paid to employees of the organization in charge of collecting the toll, to machines capable of automatically recognizing coins or bills or to machines involving electronic methods of payment like credit cards or bank cards.	2	Virtual Toll Booth	At a virtual point of toll payment, toll will be charged via automatic registration of the passing vehicle by subscription or invoice.	3	Hybrid	Hybrid signifies a toll booth which is both physical and virtual.
Domain:																			
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2	Virtual Toll Booth	At a virtual point of toll payment, toll will be charged via automatic registration of the passing vehicle by subscription or invoice.																	
3	Hybrid	Hybrid signifies a toll booth which is both physical and virtual.																	
Object Metadata	Refer to the attributes describe in the section object metadata.																		

Appendix D

(Normative)

Collection Metadata

D.1. Identification Information:

Citation:

Citation Information:

Originator:

Government of Canada, Natural Resources Canada, Earth Sciences Sector, Geomatics Canada, Centre for Topographic Information

Publication Date:

2007-07

Title:

National Road Network 2

Edition:

2.0

Geospatial Data Presentation Form:

Digital, Vector Digital Data

Series Information:**Series Name:**

National Road Network 2

Issue Identification:

2.0

Publication Information:**Publication Place:**

Sherbrooke, Quebec, Canada

Publisher:

Government of Canada, Natural Resources Canada, Centre for Topographic Information

Other Citation Details:

English, GeoBase

Online Linkage:

<http://www.geobase.ca/geobase/en/data/NRN2/index.html>

Description:**Abstract:**

The National Road Network (NRN2) product contains quality geospatial data (current, accurate, consistent and maintained) of Canadian road phenomena. The NRN2 product is distributed in the form of thirteen provincial or territorial datasets and consists of two linear entities (Road Segment and Ferry Connection Segment) and three punctual entities (Junction, Blocked Passage, Toll Point) with which is associated a series of descriptive attributes such as, among others: First House Number, Last House Number, Street Name Body, Place Name, Functional Road Class, Pavement Status, Number Of Lanes, Structure Type, Route Number, Route Name, Exit Number.

The maintenance of the NRN2 data is done within the framework of intergovernmental partnership agreements (federal, provincial, territorial and municipal) by interested closest to source governmental bodies capable of offering adequate and current representations of the road phenomena. The frequency of maintenance aimed is of at least one update a year. Data produced form a homogeneous and standardized view of the entire Canadian territory.

The NRN2 conceptual model was elaborated in collaboration with interested data providers and is adopted by the Canadian Council on Geomatics (CCOG). The standard ISO 14825 — Intelligent transport systems — Geographic Data Files (GDF) — Overall data specification served as a guide for the elaboration of the NRN2 conceptual model and catalogue. The NRN2 vocabulary used (class names, attribute names and definitions) largely conforms to the ISO 14825.

Purpose:

The National Road Network (NRN2) provides quality geospatial and attributive data (current, accurate, consistent), homogeneous and normalized of the entire Canadian road network. GeoBase 4

The NRN2 data serve as a foundation for several applications. This common geometric base is maintained on a regular basis by closest to the source organizations selected for their specific interests or for their ease in offering adequate, up-to-date representations of road phenomena, in accordance with the GeoBase initiative (www.geobase.ca). This common infrastructure facilitates data integration of NRN2 data with supplementary data.

Time Period of Content:**Time Period Information:****Range of Dates/Times:****Beginning Date:**

1979-07

Status:**Progress:**

In Work

Maintenance and Update Frequency:

Yearly

Spatial Domain:**Bounding Coordinates:****West Bounding Coordinate:**

-141

East Bounding Coordinate:
-52.6

North Bounding Coordinate:
76.5

South Bounding Coordinate:
41.7

Keywords:

Theme:

Theme Keyword Thesaurus:
GCMD

Theme Keyword:
Earth Science > Human Dimensions > Infrastructure > Transportation

Theme:

Theme Keyword Thesaurus:
none

Theme Keyword:
location

Place:

Place Keyword Thesaurus:
GCMD

Place Keyword:
Global Regions > Mid-latitude

Place Keyword:
Global Regions > North America

Place Keyword:
Global Regions > Northern Hemisphere

Place Keyword:
Global Regions > Western Hemisphere

Place:

Place Keyword Thesaurus:
CEONET

Place Keyword:
Canada

Place Keyword:
Canada > Alberta

Place Keyword:
Canada > British Columbia

Place Keyword:

Canada > Manitoba

Place Keyword:

Canada > New Brunswick

Place Keyword:

Canada > Newfoundland And Labrador

Place Keyword:

Canada > Northwest Territories

Place Keyword:

Canada > Nova Scotia

Place Keyword:

Canada > Nunavut

Place Keyword:

Canada > Ontario

Place Keyword:

Canada > Prince Edward Island

Place Keyword:

Canada > Quebec

Place Keyword:

Canada > Saskatchewan

Place Keyword:

Canada > Yukon

Access Constraints:

Data are subject to the GeoBase Unrestricted Use Licence Agreement (<http://www.geobase.ca/-Data/Licence>)

Use Constraints:

Data are subject to the GeoBase Unrestricted Use Licence Agreement (<http://www.geobase.ca/-Data/Licence>)

Point of Contact:

Contact Information:

Contact Person Primary:

Contact Person:

Geobase Technical Support

Contact Organization:

Government of Canada, Natural Resources Canada, Earth Sciences Sector, Geomatics Canada,
Centre for Topographic Information

Contact Address:

Address Type:

Mailing and physical address

Address:
2144, King Street West, Suite 010

City:
Sherbrooke

State or Province:
Quebec

Postal Code:
J1J 2E8

Country:
Canada

Contact Voice Telephone:
+01-819-564-4857 / 1-800-661-2638 (Canada and USA)

Contact Facsimile Telephone:
+01-819-564-5698

Contact Electronic Mail Address:
SoutienGeoBase@rncan.gc.ca

D.2 Data quality information

Attribute Accuracy:

Attribute Accuracy Report:

The method used for evaluating the accuracy of the non quantitative attribute values with respect to reality is determined by each data provider.

Logical Consistency Report:

The physical implementation of the NRN2 product differs from the conceptual model in what concerned the management of object metadata and the addition of certain attributes to the feature Road Segment.

Completeness Report:

NRN2 road representation corresponds to centerline of all non restricted usage roads (5 meters wide or more, drivable and not blocked by an obstacle). Roads isolated from the main road network, alleyways, resource and recreational roads and addressing information may not be included in some NRN2 datasets.

Positional Accuracy:

Horizontal Positional Accuracy:

Horizontal Positional Accuracy Report:

The planimetric accuracy aimed for the product is 10 meters or better. Under the data maintenance phase, no systematic validation of geometric and attributive accuracies is performed on all NRN2 datasets.

D.3 Spatial Data Organization Information

Direct Spatial Reference Method:

Vector

D.4 Spatial Reference Information

Horizontal Coordinate System Definition:

Geographic:

Latitude Resolution:
0.0000001

Longitude Resolution:
0.0000001

Geographic Coordinate Units:
Decimal degrees

Geodetic Model:

Horizontal Datum Name:
NAD83CSRS (North American Datum 1983 in Canadian Spatial Reference System)

Ellipsoid Name:
GRS80 (Geodetic Reference System 1980)

Semi-major Axis:
6378137

Denominator of Flattening Ratio:
298.25722101

D.5 Entity and Attribute Information

Overview Description:

Entity and Attribute Overview:
See Detail Citation.

Entity and Attribute Detail Citation:
National Road Network, edition 2.0 - Feature Catalogue

D.6 Distribution Information

Distributor:

Contact Information:

Contact Person Primary:

Contact Person:
Geobase Technical Support

Contact Organization:

Government of Canada, Natural Resources Canada, Earth Sciences Sector, Geomatics Canada, Centre for Topographic Information

Contact Address:

Address Type:

Mailing and physical address

Address:

2144, King Street West, Suite 010

City:

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State or Province:

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J1J 2E8

Country:

Canada

Contact Voice Telephone:

+01-819-564-4857 / 1-800-661-2638 (Canada and USA)

Contact Facsimile Telephone:

+01-819-564-5698

Contact Electronic Mail Address:

SoutienGeoBase@rncan.gc.ca

Standard Order Process:

Digital Form:

Digital Transfer Information:

Format Name:

Geography Markup Language (GML), ESRI Shape files, Keyhole Markup Language (KML)

Fees:

Gratuit-Free

D.7 Metadata Reference Information

Metadata Date:

2003-01-16

Metadata Review Date:

2008-06-03

Metadata Future Review Date:

2009-06-28

Metadata Contact:

Contact Information:

Contact Person Primary:

Contact Person:

Geobase Technical Support

Contact Organization:

Government of Canada, Natural Resources Canada, Earth Sciences Sector, Geomatics Canada, Centre for Topographic Information

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Address Type:

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+01-819-564-4857 / 1-800-661-2638 (Canada and USA)

Contact Facsimile Telephone:

+01-819-564-5698

Contact Electronic Mail Address:

supportGeobase@nrcan.gc.ca

Metadata Standard Name:

FGDC Content Standard for Digital Geospatial Metadata

Metadata Standard Version:

FGDC-STD-001-1998

Metadata Time Convention:

Local Time

Appendix E

(Informative)

Bibliography

- [1] ISO 3166-1:1997 Codes for the representation of names of countries and their subdivisions.
- [2] ISO 14825:2004 Intelligent transport systems Geographic Data Files (GDF) Overall data specification.
- [3] ISO 19107:2003 Geographic Information – Spatial Schema.
- [4] ISO 19110:2005 Geographic information – Methodology for feature cataloguing.
- [5] ISO 19131:2007 Geographic Information – Data Product Specifications.
- [6] National Vector Data – Identification Rules, edition 2.0, 2007-04, Natural Resources Canada, Centre for Topographic Information.
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- [8] Federal Geographic Data Committee. FGDC-STD-001-1998. Content standard for digital geospatial metadata (revised June 1998).